CLAIMS

1. A ruthenic acid nanosheet having a thickness of 1 nm or smaller.

2. The ruthenic acid nanosheet in accordance with claim 1 represented by the formula (1):

$$[RuO_{2+0.5x}]^{x-} \qquad (1)$$

3. A layered ruthenic acid compound comprising a layered structure of the ruthenic acid nanosheets in accordance with claim 1 or 2.

4. The layered ruthenic acid compound in accordance with claim 3 having an X-ray diffraction peak intensity at a (00L) plane (L = 1 to n when $0 \leqq \theta(CuK\alpha) \leqq 90^{\circ}$, n is determined depending on a basal interplanar spacing and $5 \leqq n \leqq 35$).

5. A colloidal ruthenic acid compound containing the ruthenic acid nanosheet in accordance with claim 1 and/or the layered ruthenic acid compound in accordance with claim 3 and a solvent.

6. An electrochemical device having an electrode comprising the ruthenic acid nanosheet in accordance with claim 1.

7. A method of producing a ruthenic acid nanosheet comprising the steps of:

(a) mixing ruthenium oxide and an alkali metal compound and sintering or melting the resulting mixture to obtain a layered alkaline metal-ruthenate compound containing

a ruthenic acid nanosheet having a thickness of 1 nm or smaller;

(b) treating said layered alkaline metal-ruthenate compound in an acidic solution to exchange at least part of alkali metal with proton to obtain a protonic layered ruthenic acid hydrate;

(c) reacting said protonic layered ruthenic acid hydrate with alkylammonium or alkylamine to obtain a layered alkylammonium-ruthenic acid intercalation compound; and

(d) mixing said layered alkylammonium-ruthenic acid intercalation compound with a solvent to obtain a colloid containing a ruthenic acid nanosheet having a thickness of 1 nm or smaller.

8. A method of producing the ruthenic acid nanosheet in accordance with claim 7, wherein ruthenium oxide and alkali metal salt are mixed and the resulting mixture is sintered at 700-900 ℃ in the step (a).

9. A method of producing the ruthenic acid nanosheet in accordance with claim 7, wherein ruthenium oxide and alkali metal hydroxide are mixed and the resulting mixture is melted at 500-700 ℃ in the step (a).

10. A method of producing the ruthenic acid nanosheet in accordance with claim 7, wherein said protonic layered ruthenic acid hydrate is reacted with alkylammonium represented by $(R)_mNH_{4-m}$ or $(R)_{m-p}(R')_pNH_{4-m}$ (where R and R' are $CH_3(CH_2)_q$, respectively, m = 0 to 4, p = 0 to 3 and q = 0 to

18) in the step (c).

11. A method of producing the ruthenic acid nanosheet in accordance with claim 7, wherein said protonic layered ruthenic acid hydrate is reacted with alkylamine represented by $(R)_mNH_{3-m}$ or $(R)_{m-p}(R')_pNH_{3-m}$ (where R and R' are $CH_3(CH_2)_q$, respectively, m = 0 to 3, p = 0 to 2 and q = 0 to 18) in the step (c).

12. A method of producing the ruthenic acid nanosheet in accordance with claim 7, wherein said layered alkylammonium-ruthenic acid intercalation compound is mixed with at least one solvent selected from the group consisting of water, alcohol, acetonitrile, dimethyl sulfoxide, dimethylformamide and propylene carbonate to obtain a colloid in the step (d).